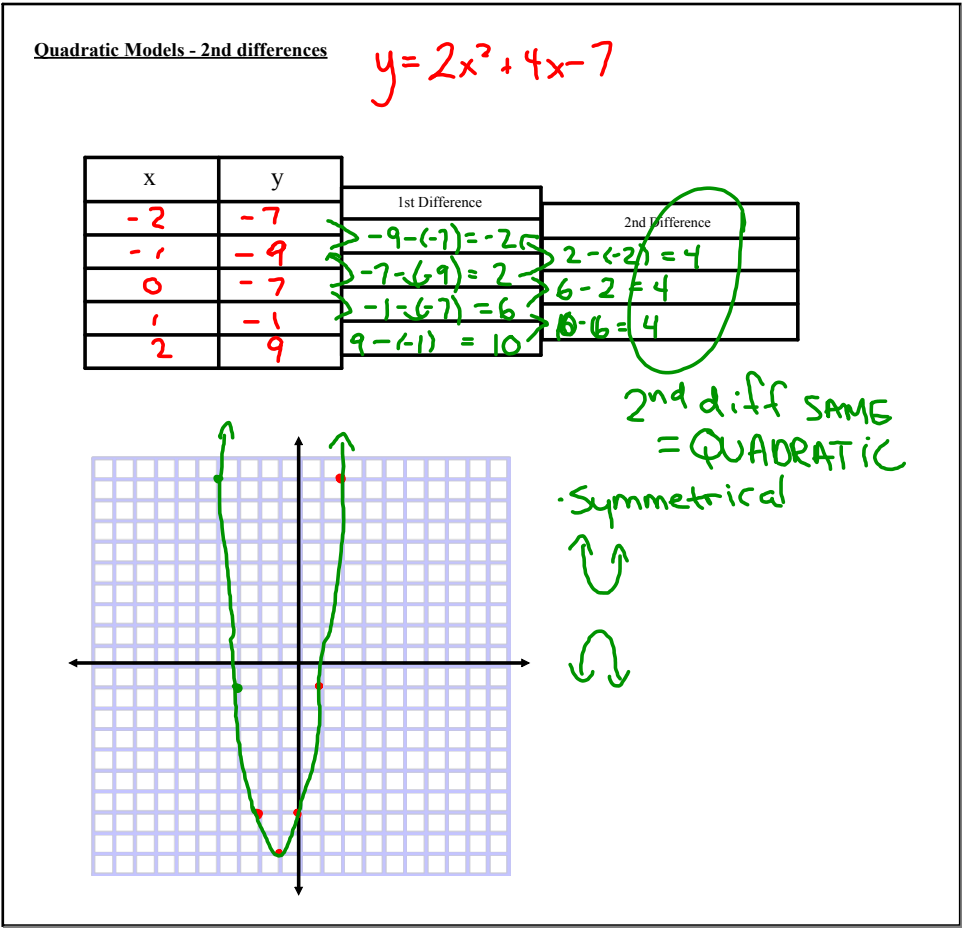


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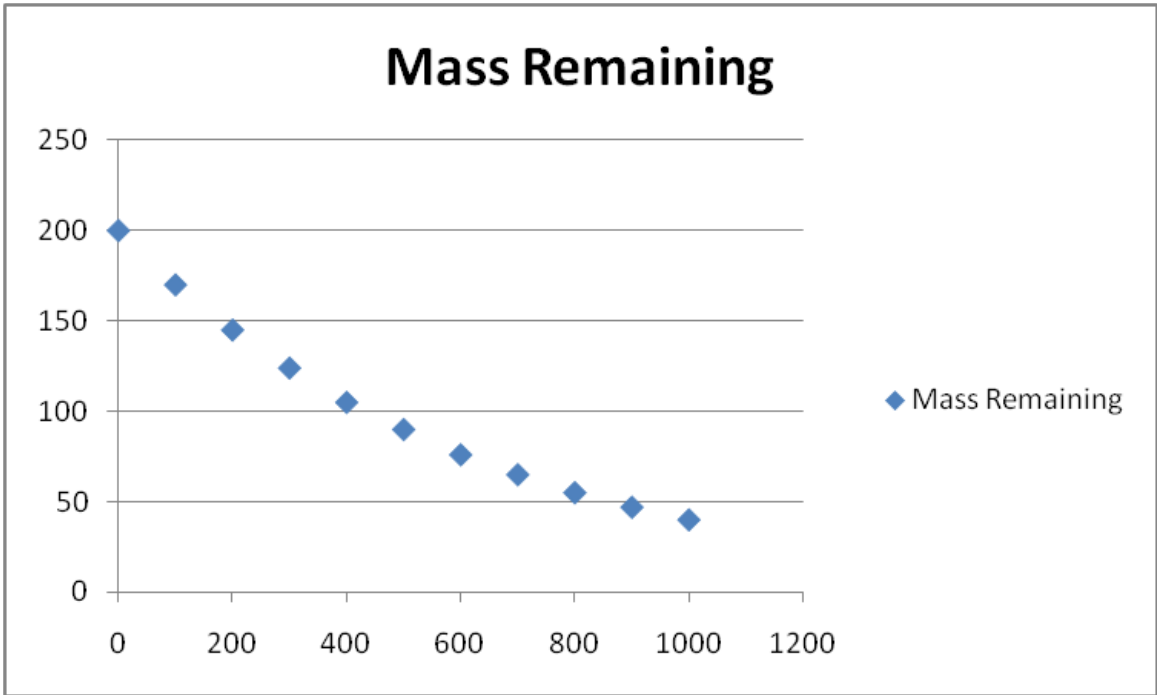
Exponential Models - Ratios

Example 1 - Americium-241 (Am-241) is a manufactured element. It is a silvery radioactive metal, which is used in smoked detectors. Household smoke detectors contain about 200 micrograms. The amount present in the detector decreases over time. The table shows the mass of Am-241 remaining, in micrograms, over 1000 years

Years	Mass Remaining	1st Difference	2nd Difference	Ratio
0	200			
100	170	$170 - 200 = -30$	$-25 - (-30) = 5$	0.85
200	145	$145 - 170 = -25$	$-21 - (-25) = 4$	0.85
300	124	$124 - 145 = -21$	$-19 - (-21) = 2$	0.86
400	105	$105 - 124 = -19$	$-15 - (-19) = 4$	0.85
500	90	$90 - 105 = -15$	$-14 - (-15) = 1$	0.84
600	76	$76 - 90 = -14$	$-11 - (-14) = 3$	0.86
700	65	$65 - 76 = -11$	1	0.85
800	55	$55 - 65 = -10$	2	0.85
900	47	-8	1	
1000	40			

Consistant ratio = Exponential function

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- Find + practice using graphing calc. Instructions.

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